

(No Model.)

2 Sheets—Sheet 1.

H. WYMAN.
JACQUARD MECHANISM FOR LOOMS.

No. 411,409.

Patented Sept. 17, 1889.

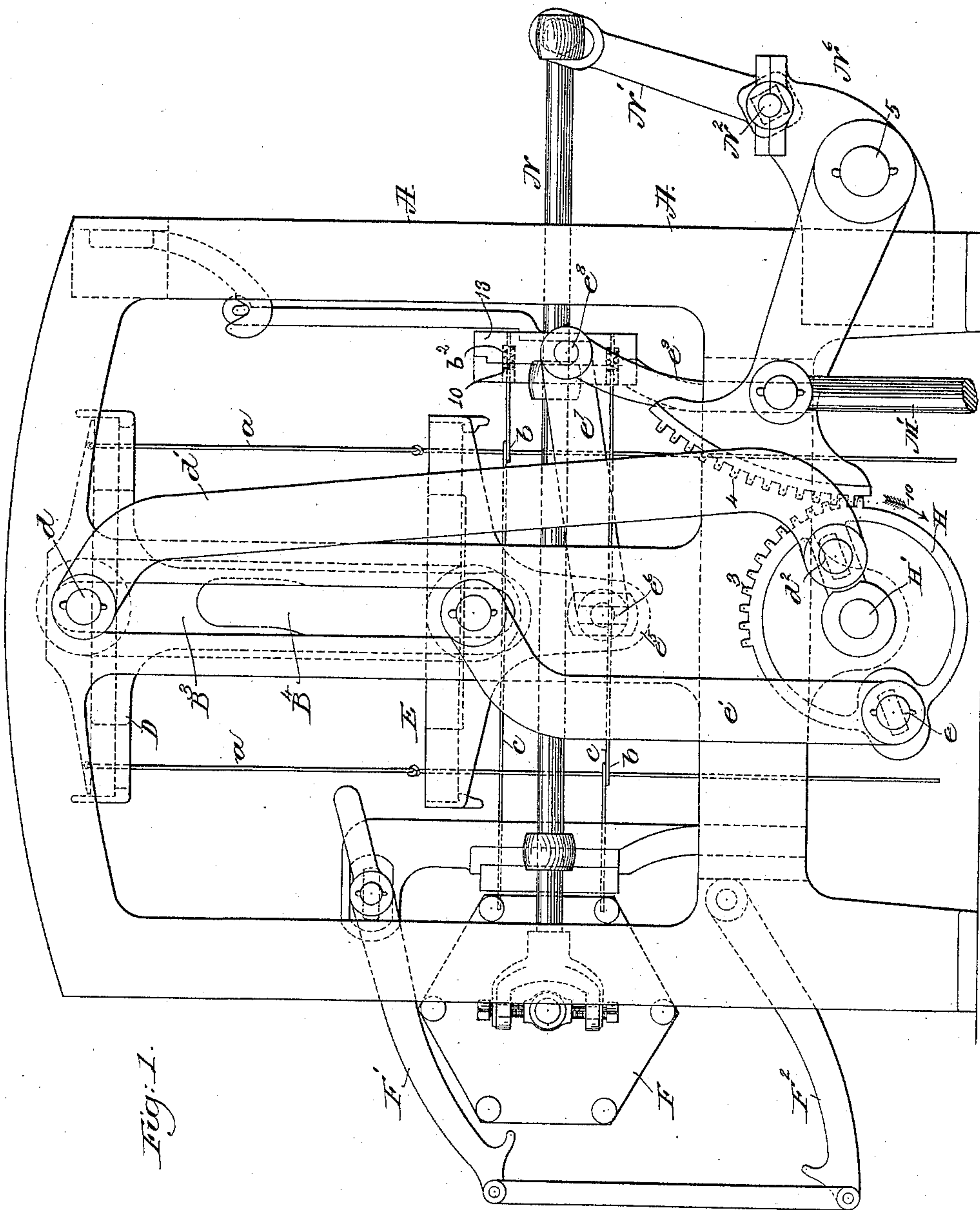


Fig. 1.

Witnesses.
Fred. S. Greenleaf
Frederick L. Emery.

Inventor.
Horace Wyman,
by Lester & Gregory
Attys.

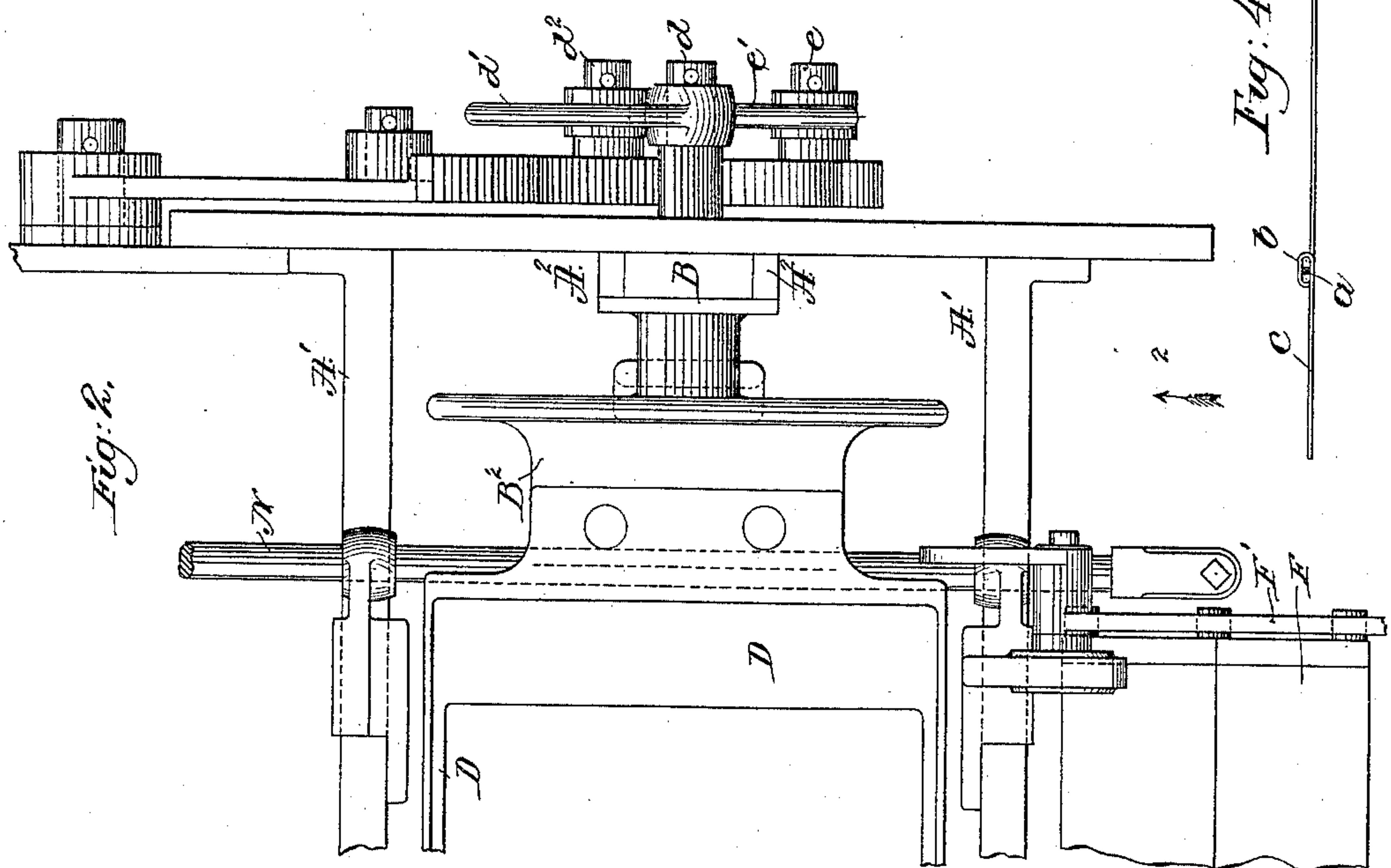
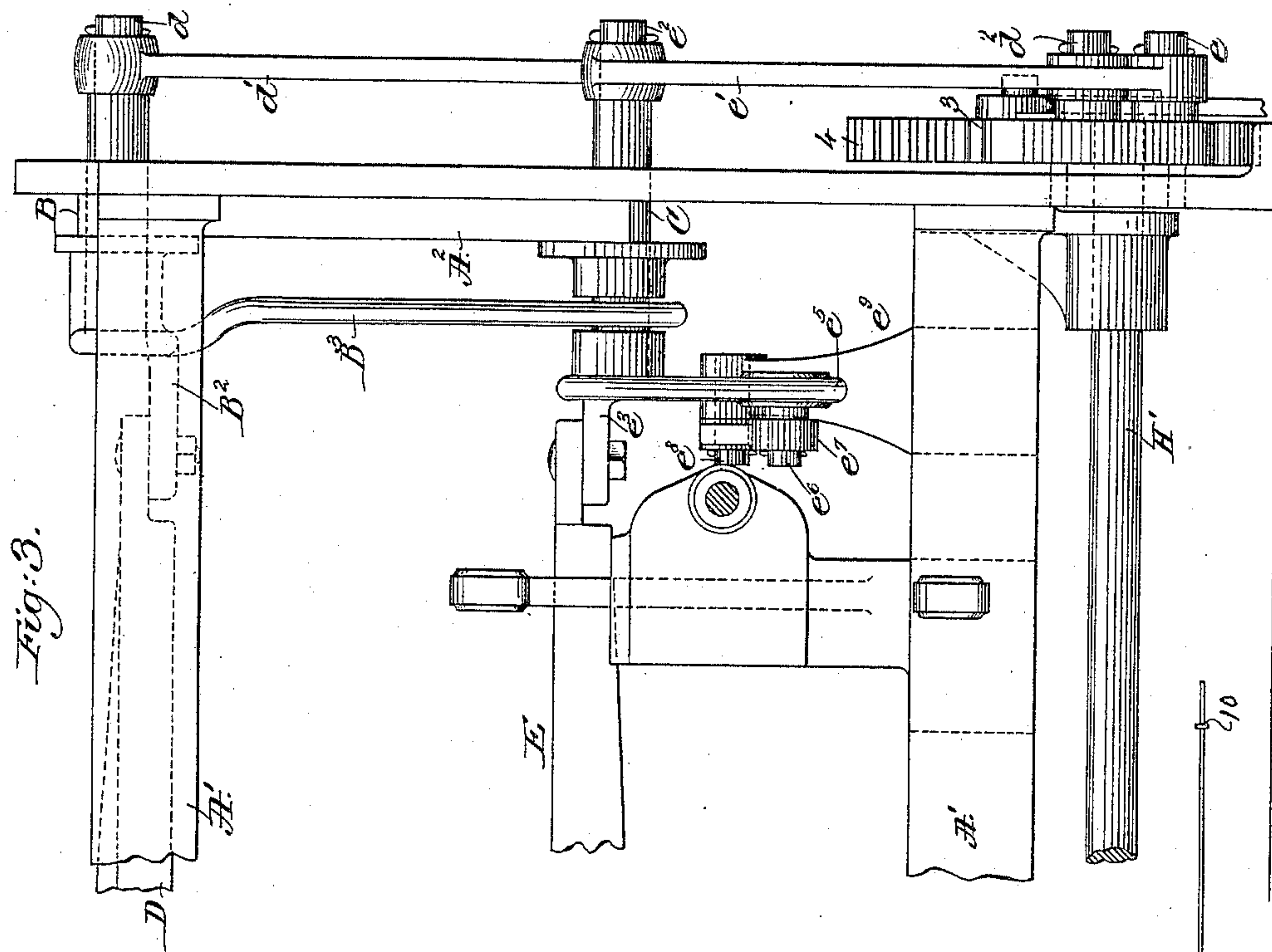
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Fred. S. Greenleaf
Frederick L. Emery -

Inventor.

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UNITED STATES PATENT OFFICE.

HORACE WYMAN, OF WORCESTER, MASSACHUSETTS, ASSIGNOR TO THE CROMPTON LOOM WORKS, OF SAME PLACE.

JACQUARD MECHANISM FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 411,409, dated September 17, 1889.

Application filed March 9, 1889. Serial No. 302,686. (No model.)

To all whom it may concern:

Be it known that I, HORACE WYMAN, of Worcester, county of Worcester, State of Massachusetts, have invented an Improvement in Jacquard Mechanism for Looms, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

10 This invention has for its object to improve that class of jacquards in which all the warp-threads are moved in one or the other direction from a common plane in the formation of the shed.

15 One particular purpose of my invention is to provide means whereby the shed when opened for the passage of the shuttle through it may be kept open for a longer time than usual, in order that the shuttle may have more time for its passage through the open shed.

20 To accomplish my object, I have combined with the top board and trap-board crank-plates, which are connected by links with and to actuate the said boards, whereby when they are being operated to form the shed the crank-pins of the said plates, one at each end of the jacquard, about as they arrive at their top and bottom centers permit the top board and trap-board to move more slowly or come substantially to a dwell as the shuttle is being thrown in usual manner across in the shed. I have also shown both the top board and the trap-board as provided with arms, which have combined with them devices, to be described, whereby the said boards may be tipped to give the proper \angle shape to the shed.

30 My invention consists, essentially, in the combination, with a top board and a trap-board, of rocking plates, crank-pins, and connecting-rods running therefrom to the said boards, whereby the said boards are retained longer in their positions farthest from each other, to retain the shed open for a longer period for the passage of the shuttle, substantially as will be described.

45 Other features of my invention will be described in the specification, and defined in the claims at the end thereof.

50 Figure 1 in side elevation represents a sufficient portion of one end of a jacquard to enable my invention to be understood; Fig.

2, a partial plan view of the parts shown in Fig. 1, the said figure showing but one end of the jacquard, the other end being omitted from the drawings because substantially like the one shown; Fig. 3, a view of some of the parts shown in Fig. 2, looking at the same in the direction of the arrow 2, the Jacquard cylinder and its actuating-pawls being, however, omitted, as well as the needle-guide board, needles, and cards. Fig. 4 is a detail showing one of the needles.

The frame-work or head A is and may be of suitable shape to support the working parts.

65 As both ends of the Jacquard frame-work are alike and would show like parts, I have considered it necessary to show but one end. The like end pieces of the frame-work are connected by suitable cross-braces, as A'. Each side frame at its inner side has projecting from it like parallel flanges A², (shown by full lines in Figs. 2 and 3,) which flanges receive between them hubs or blocks B C, projecting, respectively, from castings secured to or forming parts of the opposite ends of both the top board D and the trap-board E. The top board and the trap-board are of usual construction, the top board having secured to it and depending from it the usual Jacquard or knot cords a, which pass through the usual elongated slots (not shown) in the trap-board, and thereafter each cord passes through a suitable eye, as b, in one of the needles c, the movements of the said needles longitudinally in usual manner by the action against their ends of the Jacquard cards, (not shown,) but carried by the usual cylinder F, causing the said needles to move the Jacquard or knot cords a aside into the usual narrow portions of the openings in the trap-board whenever any particular knot-cord is to be lifted to lift any particular warp thread or threads, that depending upon the pattern being woven. One of the needles c is shown detached in Fig. 4. Each needle c has near one end a small collar, as 10, (shown by full lines in Fig. 4 and by dotted lines in Fig. 1,) which collars abut against springs 12 (also shown by dotted lines) in the guide-boards 13, the said springs normally keeping the opposite ends of the needles pressed outwardly in position to be

struck by the usual pattern-cards, which will be carried by the cylinder F. The top board has a journal d extended outwardly from it through a slot in the side frame, said journal receiving upon it loosely the upper end of a link or connecting-rod, as d' , the lower end of the said link being placed loosely over a stud or crank-pin d^2 , which in practice will preferably be connected in an adjustable manner to a rocking plate, as H, secured to the shaft H', the said rocking plate being herein shown as provided with a series of teeth, as 3, which are engaged by a toothed sector 4, having its other end pivoted on a stud 5, fixed in a bracket M, the said sector in practice deriving its movement in the arc of a circle backward and forward from a connecting-rod, as M', (partially shown in Fig. 1,) which in practice will extend down to a suitable crank-pin actuated by a suitable shaft at the lower part of the loom, all in usual manner. The links d' e' at their lower ends embrace the studs d^2 e , made adjustable in slots (see Fig. 1) in the rocking plate H in usual manner. The shaft H', extended across the loom, is provided at its opposite end with a like rocking plate. Each rocking plate referred to has a second stud or crank-pin, as e , which will be connected thereto in an adjustable manner, and this crank-pin receives upon it loosely a connecting rod or link, as e' , the upper end of which embraces a journal, as e^2 , extended from the end of the trap-board or the frame or casting to which the trap-board is connected in usual manner, the said frame being herein designated by the letter e^3 . (See Fig. 3.)

The frame B^2 , to which the top board D is secured in usual manner, has depending from it, preferably at each end, an arm, as B^3 , having a cam-slot B^4 , the shape of which is best illustrated in Fig. 1, the journal e^2 , referred to as projecting from the trap-board, passing through the said slot, and thence outwardly through a slot in the guide-frame, after which it receives upon it the link or connecting-rod e' .

The frame part e^3 , carrying the trap-board, (shown by full lines in Fig. 3 and dotted lines in Fig. 1,) has a depending lug or ear, as e^5 , which receives in it a pin or stud, as e^6 , carried by a link e^7 , connected by a pin e^8 to a stand e^9 , erected upon the frame-work.

The Jacquard cylinder F, which may be of any usual construction, is herein shown as operated by two pawls F' F², connected together, the said pawls being of common construction, the journals of the Jacquard cylinder being supported in boxes resting upon suitable adjusting-screws in a lug at the forward end of a suitable slide-rod, as N, deriving its motion from an arm, as N', of a rock-shaft N², the latter deriving its motion in practice in usual manner.

I do not lay any claim to any particular means for moving the Jacquard cylinder, as they may be common.

The rocking plate may have a half-rotation, or, as herein shown, a motion less than a semi-rotation, such motion, however, being sufficient to carry the two crank-pins or studs e d^2 in substantially the same vertical line, the motion being in the direction of the arrow 10 on Fig. 1, such movement of the rocking plates, one at each end of the frame, causing the trap-board to be positively lifted and the top board to be drawn down positively, as when making the shed, and as the said crank-pins or studs arrive in substantially the same vertical line the movements of the said boards are the slowest, so that they come substantially to rest or sufficiently so as to afford a dwell in the movement of the said boards, such slowness of movement or dwell taking place as the shuttle is being thrown through the shed which has been formed, the object being to retain the shed open longer than usual for the passage of the shuttle. As the trap-board is lifted and the top board is lowered, the journals e^2 of the trap-board, one at each end thereof, traveling in the slots B^4 of the arms B^3 , extended from the top board, causes the top board to be moved slightly out of a horizontal plane, and at the same time the trap-board as it is lifted is acted upon by the link e^7 and is moved slightly about its journals e^2 , which are supported in the links e' .

The rocking of the top board and the trap-board, as described, enables the Jacquard or knot cords to act upon the warp-threads in such manner as to give a <-shaped shed.

I do not desire to limit myself to the exact shape shown for the rocking plates nor to the particular means shown for rocking said plates.

I claim—

1. The combination, with the top board and trap-board and rocking plates having crank-pins, of connecting-rods extended from the said crank-pins to the said boards, and with means to actuate the rocking plates, whereby a substantial dwell may be given to the said boards when the shed is fully opened for the passage of the shuttle, substantially as described.

2. The combination, with the top board and trap-board and rocking plates having crank-pins, of connecting-rods extended from the said crank-pins to the said boards, and with means to actuate the rocking plates, whereby a substantial dwell may be given to the said boards when the shed is fully opened for the passage of the shuttle, and with means for rocking the said top board and trap-board to give a <-shape to the shed, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HORACE WYMAN.

Witnesses:

JUSTIN A. WARE,
JOHN B. SYME.